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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

10/543095

Applicant's or agent's file reference 9948	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/GB 03/05399	International filing date (day/month/year) 11.12.2003	Priority date (day/month/year) 27.01.2003	
International Patent Classification (IPC) or national classification and IPC B01J21/04			
Applicant BP CHEMICALS LIMITED et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 04.08.2004		Date of completion of this report 25.04.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Schoofs, B Telephone No. +31 70 340-2760	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB 03/05399

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-14 as originally filed

Claims, Numbers

1-42 as originally filed

Drawings, Sheets

1/1 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB 03/05399

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,30,31
Inventive step (IS)	Yes: Claims	
	No: Claims	1-42
Industrial applicability (IA)	Yes: Claims	1-42
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: GB-A-1329451
D2: US-A-3240805
D3: EP-A-0294845
D4: WO-A-00 14047

2. The present application relates to a method for the preparation of a supported catalyst composition, which comprises (a) forming a slurry of the metal component and the alpha-alumina support (precursor); and (b) spray drying the slurry (claim 1), a supported catalyst composition prepared by this method (claim 30) and a process for the selective oxidation of ethane to ethylene and/or acetic acid, and/or the selective oxidation of ethylene to acetic acid in the presence of this supported catalyst composition (claim 31).
3. D1 discloses a process for the preparation of a supported catalyst composition, wherein various metal components are spray deposited on alpha alumina and that these catalysts are used for the conversion of ethylene with the formation of acetic acid (D1, examples).
- 3.1 D1 further discloses that "excellent catalysts are prepared by spray deposition of a solution or solutions containing the catalytic components on to alpha-alumina with a concurrent rapid removal of solvent. The temperature applied in such spray-drying may be chosen as not only to effect the removal of the solvent but also ..." (D1, page 3, lines 39-60). Hence, no difference can be acknowledged between this disclosure in D1 and the expression in claim 1 that the catalyst is prepared by "spray-drying the slurry". The subject-matter of claims 1, 30 and 31 is therefore not new (Article 33(2) PCT).
- 3.2 Dependent claims 2-29 and 32-42 do not appear to contain any features which, in

combination with the features of any claim to which they refer, would meet the requirements of the PCT in respect of novelty or are associated with any unexpected technical effect that could support the presence of an inventive step. The subject-matter of claims 2-29 and 32-42 is therefore not new (Article 33(2) PCT) or does not involve an inventive step (Article 33(3) PCT).

4. D2 and D3 disclose a process for the preparation of a supported catalyst composition, wherein various metal components are deposited on an alpha alumina and that these catalysts are used for the conversion of ethane and/or ethylene to acetic acid (D2, examples; D3, example 8). The present application differs from D2 and D3 in that the catalyst is spray-dried. At the present stage however, spray-drying the catalyst does not appear to be associated with an unexpected technical effect that could support the presence of an inventive step. Hence, no inventive step is present in the subject-matter of claims 1 to 42 (Article 33(3) PCT).
5. As a further comment it is observed that it appears that the present invention resides in replacing the silica carrier in a Mo-V-Nb-Au catalyst by an alpha-alumina carrier (see catalyst A, catalyst B and comparative example 1 and D4: WO-A-00 14047).